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研究報告

臺灣水稻害蟲名錄之修訂

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摘要

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水稻為臺灣主要糧食作物，稻米的安全生產攸關人民生活富足與國家安定。水稻害蟲名錄之建立可提供害蟲生態與管理的重要參考資訊。根據往昔紀錄，臺灣水稻害蟲 (蟎) 曾紀錄有 59–111 種，經重新修訂結果顯示，目前計有害蟲種類 107 種與蟎類 1 種，並排除方異距蝗 (*Heteropternis respondens* (Walker, 1859)) 等 34 種疑問種。

關鍵詞：臺灣、水稻、害蟲與害蟎名錄。

前言

水稻 (*Oryza sativa* Linn.)、小麥及玉米為全世界人口之三大主要糧食作物，供應全人類 50% 以上之熱量來源。在亞洲地區，全球 90% 的水稻種植與消費量在此區域。臺灣地處熱帶與亞熱帶，高溫多雨的氣候適合水稻種植，臺灣在明朝末年開始引進水稻，以種植陸稻 (upland rice) 為主，期間有關水稻害蟲紀錄出現於《臺灣府誌》等『地方誌』中，但名稱為蛾、蟬等，並未說明其對水稻之危害方式與發生情況，甚難辨明是否為真正的水稻害蟲 (Cheng & Chu 1999)。在日治初期 (1895 年)，日本於臺灣成立水稻專責研究機構，水稻 (灌溉稻，irrigated rice) 種植面積與產量迅速增加，逐漸有系統地進行水稻蟲害研究與紀錄 (Miwa 1943)；臺灣光復 (1945 年) 後，政府也積極投入大量人力與經費進行研究，隨著灌溉系統的改善、化學肥料及藥劑大量使用等措施，此時期之水稻進入大量增產期，於 1975 年種植面積達到最高 (79 萬餘公頃)，糙米產量約 3,156 kg ha^{-1} (Huang 1999)，但水稻害蟲發生蟲相隨之改變，早期紀錄之 5 大害蟲 (稻黑椿象 (*Scotinophara lurida* (Burmeister))、稻負泥蟲 (*Oulema oryzae* (Kuwayama)) 及稻鐵甲蟲 (*Dicladispa armigera* (Olivier)) 等) 逐漸式微，而個體小、世代短之飛蝨類與葉蟬類害蟲則逐漸崛起 (Cheng & Huang 2009)；後因臺灣糧食生產過剩，國人飲食習慣改變等，稻田生產政策改為轉作調整等方向，蟲害管理方式進入以生態為基礎之綜合管理方式，蟲害發生隨之更迭，截至 2023 年為止，栽培面積已降至 22.2 萬公頃，糙米產量約 5,161 kg ha^{-1} (https://agrstat.moa.gov.tw/sdweb/public/inquiry/InquireAdvance.aspx)；期間，除長距離遷移性害蟲於遷出地區之發生種類及族群消長變化，如褐飛蝨 (*Nilaparvata lugens* (Stål))、白背飛蝨 (*Sogatella furcifera* (Horváth)) 及水稻縱捲葉蟲 (*Cnaphalocrocis medinalis* (Guenée)) 等，進而影響遷入地區 (臺灣) 蟲害發生變化外，隨著國際貿易頻繁，外來種 (如水稻水象鼻蟲 (*Lissorhoptrus oryzophilus* Kuschel)) 隨著貨物的入侵而立足於臺灣，嚴重之危害性除對產量造成重大影響，也改變原有臺灣蟲害管理模式，為臺灣糧食安全生產需面臨調整之重大問題 (Huang *et al.* 2010)。

近年來全球氣候變遷情況日趨嚴重，其中以溫度上升現象最為明顯，臺灣逐漸變成熱帶

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型氣候環境，原本存在臺灣的熱帶型水稻害蟲發生逐漸遽增，南洋地區的熱帶地區種類也很有可能向北擴散而入侵至臺灣，馬來亞黑椿象 (Malayan rice black bug, *Scotinophara coarctata* (Fabricius))，亦為政府需要注意之課題 (Lai *et al.* 2023)。害蟲名錄之建立除提供害蟲發生紀錄外，更可搭配環境改變及蟲害發生更迭資料，提供分析之參考，作為政府對於臺灣未來糧食安全管理策略擬定之重大參考資訊。

材料與方法

名錄依據與分類文獻來源蒐集

本名錄修訂方法包含蒐集日治時期與臺灣光復至今發表有關臺灣水稻害蟲之調查與名錄等報告為基礎，其中摒除以往文獻中未附參考文獻之存疑有害生物紀錄，達到本研究增修訂有害生物名錄的正確性。修正名錄內容包含每一害蟲 (蟎) 所屬之分類階層 (taxonomic category)、學名 (scientific name)、中英文俗名 (common name)、引用文獻 (cited reference)、危害部位及害蟲階級 (category of pest) 等資訊。害蟲分類階級採用拉丁文與中文並列，引用之文獻亦詳列出作者、發表年代及引用資料出處，以方便讀者查詢。同物異名因繁多不予羅列，亦參考全球生物多樣性資訊機構 (Global Biodiversity Information Facility; GBIF) 的 GBIF Backbone Taxonomy (https://www.gbif.org/dataset/d7dddbf4-2cf0-4f39-9b2a-bb099caae36c)、EPPO Global Database (https://gd.eppo.int/)、ScaleNet (https://www.sel.barc.usda.gov/scalenet/query.htm) 及 CABI Digital Library (https://www.cabidigitallibrary.org/action/doSearch?ConceptID=50006) 進行查詢。害蟲危害之分級標準依 Pena *et al.* (1997) 報告指出，如在未採取任何防治措施情況下，害蟲族群經繁殖與危害，對作物生長與產量造成嚴重影響者，為主要害蟲 (major or key pest)；害蟲對作物造成經濟損失不高，但也有可能取代成為主要害蟲種類者，為次要害蟲 (secondary or minor pest)；於特定時間發生之區域性害蟲種類者，為偶發性害蟲 (occasional pest)；先前未被記錄為害蟲，經調查與飼育後，確定可以為害水稻與完成生活史者，則以新興害蟲 (emerging pest) 表示。

水稻田間害蟲調查

本調查由筆者自 2015–2023 年，於嘉義縣民雄鄉有機栽培水稻田區 (0.3 ha) 中，每 2 wk 以目視與掃網調查水稻上之有害生物種類，每次目視 120 叢水稻與來回網掃 (網徑 37 cm，網深 75 cm，蟲桿長 100 cm) 20 次；期間亦至各縣市田區中採樣，所採集到可疑與無法鑑定之有害生物種類者，標本送請農業部農業試驗所應用動物組昆蟲分類研究室協助鑑定。針對文獻上未記錄之害蟲種類，則攜回實驗室或以套網飼育，若該害蟲可取食危害並完成生活史，則確定其為害蟲種類，只有某一時期危害者僅能判定水稻為其食料作物 (food plant)，並非其寄主植物 (host plant) (Shih *et al.* 2013)。

臺灣水稻害蟲 (蟎) 存疑種之判定

為進行臺灣水稻害蟲 (蟎) 之判定，評定標準以 Shih *et al.* (2013) 報告為主，其發生若為 (1) 首次被記錄為臺灣水稻上之害蟲，惟日後野外調查亦未被發現者；(2) 屬於多食性害蟲 (polyphagous) 種類，曾被列為水稻害蟲，之後卻無報告證明者；(3) 上述 2 種害蟲種類，其幼期個體在野外被採集，並攜回實驗室或套網飼育，但無法成功存活者；(4) 曾在報告中記載為臺灣水稻害蟲種類，但證實臺灣當時並無此種害蟲存在，或寄主確定不含水稻。具上述情形者，均判定為存疑種。

結果

本研究修訂之『臺灣水稻害蟲 (蟎) 名錄』總計包含 7 目 33 科 107 種之昆蟲與 1 目 1 科 1 種之蟎類 (表 1、表 2)。另外由文獻比對、考證及實地調查之結果，共有 34 種害蟲列為存疑種，將此類害蟲排除於名錄外，其結果詳列如下：

表 1. 往昔與本研究記錄之水稻害蟲與其他有害動物種類數。
Table 1. Total number of rice pest species of Taiwan from previous studies and present study.

Taxonomic category	Total number of rice pest species				
	Miwa (1943)	Tsai (1965)	Yen (1973)	Cheng (2007)	Present study
Orthoptera	23	24	24	9	22
Blattodea	0	0	3	0	1
Hemiptera	47	55	19	27	53
Thysanoptera	1	2	1	3	3
Coleoptera	4	5	3	4	4
Lepidoptera	20	25	11	13	22
Diptera	0	0	1	2	2
Insecta	95	111	62	58	107
Arachnida	-	-	-	1	1

臺灣水稻害蟲 (蟎) 名錄修訂及存疑種之判定

日治時期 (1945 年以前)

有關臺灣水稻害蟲之報告主要有 Miwa (1943) 所著之《臺灣害蟲名彙》(表 1、表 2)，其中記載危害臺灣水稻之害蟲種類計有 5 目 (直翅目、半翅目、纓翅目、鞘翅目及鱗翅目) 30 科 95 種。經查閱臺灣物種名錄 (https://taicol.tw/zh-hant/)、Zoological Record (https://www.webofscience.com/wos/woscc/basic-search) 資料檢索、全球生物多樣性資訊機構 (GBIF) 的 GBIF Backbone Taxonomy (https://www.gbif.org/dataset/d7dddbf4-2cf0-4f39-9b2a-bb099caae36c)、EPPO Global Database (https//gd.eppo.int/) 及 CABI Digital Library (https://www.cabidigitallibrary.org/action/doSearch?ConceptID=50006) 等資料庫，其中直翅目 (Orthoptera) 蝗科 (Acrididae) 方異距蝗 (*Heteropternis respondens* (Walker, 1859)) 等 14 種列為存疑種。

臺灣光復 (1945 年以後) 至今研究資料之考證

1945 年以後有關臺灣水稻害蟲名錄之報告，包含 Tsai (1965)、Yen (1973) 及 Cheng (2007) 等。Tsai (1965) 所著《臺灣植物害蟲名彙》專書，記錄可為害水稻害蟲種類 5 目 (直翅目、半翅目、纓翅目、鞘翅目及鱗翅目) 33 科 111 種，該書之引用文獻在序文中表明以 Miwa (1943)《臺灣害蟲名彙》為主，並收集 1945 年以後學者所發表的新紀錄種，只是新紀錄種之害蟲種類並未標明引用報告出處。經比對 Miwa (1943) 與 Tsai (1965) 之記載名錄害蟲種類中，發現 Tsai (1965) 的報告中增列直翅目 (Orthoptera) 螻蛄科 (Gryllotalpidae) 的臺灣螻蛄 (*Gryllotalpa formosana* Shiraki, 1930) 等 18 種。在增列的種類中，直翅目 (Orthoptera) 蟋蟀科 (Gryllidae) 的米卡鬥蟋 (*Velarifictorus micado* (Saussure, 1877)) 等 11 種，並未有危害水稻之報告，符合『某些屬於多食性昆蟲種類，於臺灣從無研究報告證明可危害水稻，但在某些名錄上列為水稻害蟲』之存疑種方式處理，這些種類列為臺灣水稻害蟲之存疑種 (附錄)。Yen (1973) 所編著《臺灣水稻之害蟲》一書內容為諸多臺灣學者整理相關報告而成，共記錄為害水稻害蟲種類 7 目 17 科 62 種，報告中增列蜚蠊目 (Blattodea) 白蟻科 (Termitidae) 的黑翅土白蟻 (*Odontotermes formosanus* (Shiraki, 1909)) 等 19 種，但經查詢上述資料庫，其中蜚蠊目 (Blattodea) 白蟻科 (Termitidae) 的新渡戶歪白蟻 (*Pericapritermes nitobei* (Shiraki, 1909)) 等 7 種並未有危害水稻之報告，故列為

表 2. 臺灣水稻害蟲 (蟎) 名錄。

Table 2. An annotated checklist of rice insect pests and mites from Taiwan.

Taxonomic category/Scientific name	Preferred common name: English/Chinese	Cited reference with information of rice insect pests and mites from Taiwan	Associated with rice root (R), stem (S), leaf (L), flower (F) or grain (G)	Category of pest
ARACHNIDA	蛛形綱			
TROMBIDIFORMES	絨蟎目			
1. Tarsonemidae	細蟎科			
(1) *Steneotarsonemus spinki* Smiley, 1967	Panicle rice mites, Rice tarsonemid mite/稻細蟎	Cheng (2007)	L, F, G	Major
INSECTA	昆蟲綱			
ORTHOPTERA	直翅目			
1. Acrididae	蝗科			
(1) *Acrida cinerea* (Thunberg, 1815)	Oriental longheaded grasshopper/尖頭蝗、中華劍角蝗	Miwa (1943); Tsai (1965:9); Yen (1973)	L	Minor
(2) *Acrida formosana* Steinmann, 1963	Taiwan cone-headed grasshopper/臺灣劍角蝗	Yen (1973)	L	Minor
(3) *Aiolopus thalassinus tamulus* (Fabricius, 1798)	European locust/斑蝗	Miwa (1943); Tsai (1965:9); Yen (1973)	L	Minor
(4) *Gastrimargus marmoratus* (Thunberg, 1815)	Band-winged grasshopper/車蝗	Yen (1973)	L	Minor
(5) *Gelastorhinus rotundatus* Shiraki, 1910	Slant-faced grasshopper/圓翅蜈蚸蝗、臺灣擬尖頭蝗	Yen (1973)	L	Minor
(6) *Gesonula punctifrons* (Stål, 1861)	擬稻蝗	Miwa (1943); Tsai (1965:11); Yen (1973)	L	Minor
(7) *Locusta migratoria migratorioides* (Reiche & Fairmaire, 1849)	Migratory locust/菲律賓飛蝗、東亞飛蝗	Miwa (1943); Tsai (1965:11); Yen (1973)	L, G	Minor
(8) *Oedaleus infernalis* Saussure, 1884	Band-winged grasshopper/黃脛小車蝗、擬車蝗	Miwa (1943); Tsai (1965:11); Yen (1973)	L	Minor
(9) *Oxya chinensis* (Thunberg)	Rice grasshopper/稻蝗	Yen (1973); Cheng (2007)	L	Minor
(10) *Oxya intricata* (Stål, 1861)	Small rice grasshopper/小蝗、小稻蝗	Miwa (1943); Tsai (1965:11); Yen (1973); Cheng (2007)	L, G	Minor
(11) *Oxya japonica* (Thunberg, 1815)	Japanese grasshopper/日本稻蝗	Cheng (2007)	L	Minor
(12) *Patanga succincta* (Johannson, 1763)	Bombay locust/條背土蝗	Miwa (1943); Tsai (1965:12); Yen (1973); Cheng (2007)	L	Minor

表 2. 臺灣水稻害蟲 (蟎) 名錄。(續)

Table 2. An annotated checklist of rice insect pests and mites from Taiwan. (continued)

Taxonomic category/Scientific name	Preferred common name: English/Chinese	Cited reference with information of rice insect pests and mites from Taiwan	Associated with rice root (R), stem (S), leaf (L), flower (F) or grain (G)	Category of pest
(13) *Phlaeoba formosana* (Shiraki, 1910)	細小翅蝗、臺灣佛蝗	Miwa (1943); Tsai (1965:12); Yen (1973)	L	Minor
(14) *Stenobothrus formosanus* Shiraki, 1910	臺灣草地蝗	Miwa (1943); Tsai (1965:13); Yen (1973)	L	Minor
(15) *Stenocatantops splendens* (Thunberg, 1815)	白條細蝗	Miwa (1943); Tsai (1965:10); Yen (1973)	L, G	Minor
2. Pyrgomorphidae	錐頭蝗科			
(16) *Atractomorpha sinensis* Bolívar, 1905	中華負蝗、短額負蝗	Miwa (1943); Tsai (1965:9–10); Yen (1973)	L	Minor
3. Gryllidae	蟋蟀科			
(17) *Gryllus bimaculatus* De Geer, 1773	Two-spotted cricket/黃斑黑蟋蟀、雙斑蟋蟀	Miwa (1943); Tsai (1965:14)	L, R	Minor
(18) *Loxoblemmus arietulus* Saussure, 1877		Miwa (1943); Tsai (1965:15)	L, R	Minor
(19) *Teleogryllus mitratus* (Burmeister, 1838)	白緣眉紋蟋蟀	Miwa (1943); Tsai (1965:15)	L, R	Minor
(20) *Velarifictorus aspersus* (Walker, 1869)	長顎鬥蟋	Miwa (1943)	L, R	Minor
4. Gryllotalpidae	螻蛄科			
(21) *Gryllotalpa formosana* Shiraki, 1930	Mole cricket/臺灣螻蛄	Tsai (1965:16–17)	R	Minor
(22) *Gryllotalpa orientalis* Brumeister, 1839	Oriental mole cricket/東方螻蛄	Cheng (2007)	R	Minor
BLATTODEA	蜚蠊目			
1. Termitidae	白蟻科			
(1) *Odontotermes formosanus* (Shiraki, 1909)	Formosan subterranean termites/臺灣土白蟻、黑翅土白蟻、臺灣白蟻、姬白蟻	Yen (1973)	S	Minor
HEMIPTERA	半翅目			
1. Pentatomidae	椿象科			
(1) *Eysarcoris ventralis* (Westwood, 1837)	White-spotted stink bug/白斑椿象、二星椿象、白星椿象	Tsai (1965:27–28); Cheng (2007)	G	Minor
(2) *Eysarcoris guttigerus* (Thunberg, 1783)	Two-spotted sesame bug/圓白斑椿象、圓白星椿象	Tsai (1965:27); Cheng (2007)	G	Minor
(3) *Lagynotomus elongatus* (Dallas, 1851)	Rice stink bug/稻椿象、白邊椿象	Miwa (1943); Tsai (1965:28); Yen (1973); Cheng (2007)	G	Minor
(4) *Megarrhamphus truncatus* (Westwood, 1837)	Shield-back bugs/大蝦殼椿象	Tsai (1965:28)	G	Minor
(5) *Menida versicolor* (Gmelin, 1790)	Rice stink bug/稻赤曼椿象	Miwa (1943); Tsai (1965:28)	G	Minor

表 **2.**　臺灣水稻害蟲 (蟎) 名錄。(續)

Table 2.　An annotated checklist of rice insect pests and mites from Taiwan. (continued)

Taxonomic category/Scientific name	Preferred common name: English/Chinese	Cited reference with information of rice insect pests and mites from Taiwan	Associated with rice root (R), stem (S), leaf (L), flower (F) or grain (G)	Category of pest
(6) *Nezara viridula* (Linnaeus, 1758)	Southern green stink bug/綠椿象、南方綠椿象	Miwa (1943); Tsai (1965:28); Yen (1973); Cheng (2007)	G	Minor
(7) *Scotinophara lurida* (Burmeister, 1834)	Black rice bug/稻黑椿象、黑椿象	Miwa (1943); Tsai (1965:29); Yen (1973); Cheng (2007)	L, S, G	Major
2. Plataspidae	龜椿象科			
(8) *Megacopta cribraria* (Fabricius 1798)	Bean plataspid/篩豆龜椿	Miwa (1943); Tsai (1965:26–27); Yen (1973)	G	Minor
3. Coreidae	緣椿象科			
(9) *Cletus bipunctatus* (Herrich-Schäffer, 1840)	Spined legume bug/菲棘緣椿象	Miwa (1943); Tsai (1965:29)	G	Minor
(10) *Cletus punctiger* (Dallas, 1852)	臺灣細針緣椿象、稻棘緣椿象	Miwa (1943); Tsai (1965:29); Yen (1973); Cheng (2007)	G	Minor
(11) *Cletus trigonus* (Thunberg, 1783)	Slender rice bug/細針緣椿象、長肩棘緣椿	Miwa (1943) Tsai (1965:29); Yen (1973); Cheng (2007)	G	Minor
4. Alydidae	蛛緣椿科			
(12) *Leptocorisa acuta* (Thunberg, 1783)	Rice seed bug, Rice ear bug/臺灣蜘蛛緣椿象、禾蛛緣椿象	Miwa (1943); Tsai (1965:29–30); Yen (1973:31); Cheng (2007)	G	Minor
(13) *Leptocorisa chinensis* Dallas, 1852	Corbett rice bug/稻蛛緣椿象、中華稻緣椿象	Yen (1973:31); Cheng (2007)	G	Minor
(14) *Leptocorisa oratoria* (Fabricius, 1794)	Rice ear bug/大稻緣椿象	Yen (1973:31)	G	Minor
(15) *Riptortus pedestris* (Fabricius, 1775)	Bean bug/點蜂緣椿、臺灣細緣椿象、黃星細緣椿象、細緣椿象	Miwa (1943); Tsai (1965:30); Yen (1973); Cheng (2007)	G	Minor
(16) *Riptortus linearis* (Fabricius, 1775)	Board-headed bug/條蜂緣椿、臺灣細緣椿象	Miwa (1943); Tsai (1965:30); Yen (1973); Cheng (2007)	G	Minor
5. Lygaeidae	長椿象科			
(17) *Eucosmetus incisus* (Walker, 1872)	大頭隆胸長椿、臺灣雙星長椿象	Miwa (1943); Tsai (1965:31); Cheng (2007)	G	Minor
(18) *Paromius gracilis* (Rambur, 1839)	短喙細長椿、稻長椿象	Miwa (1943); Tsai (1965:31)	G	Minor
6. Miridae	盲椿科			
(19) *Tinginotopsis oryzae* (Matsumura, 1910)	稻盲椿象	Miwa (1943); Tsai (1965:33); Cheng (2007)	G	Minor

表 2. 臺灣水稻害蟲 (蟎) 名錄。(續)

Table 2. An annotated checklist of rice insect pests and mites from Taiwan. (continued)

Taxonomic category/Scientific name	Preferred common name: English/Chinese	Cited reference with information of rice insect pests and mites from Taiwan	Associated with rice root (R), stem (S), leaf (L), flower (F) or grain (G)	Category of pest
7. Aphrophoridae	尖胸沫蟬科			
(20) *Poophilus costalis* (Walker, 1851)	Spittle bug/嗜菊短頭脊沫蟬	Miwa (1943); Tsai (1965:33)	L	Minor
8. Cicadellidae	葉蟬科			
(21) *Cicadella viridis* (Linnaeus, 1758)	Green leafhopper/大青葉蟬	Miwa (1943); Tsai (1965:34)	L	Minor
(22) *Cofana spectra* (Distant, 1908)	White leafhopper/大白葉蟬、白翅褐脈葉蟬	Miwa (1943); Tsai (1965:34)	L	Minor
(23) *Empoascanara alami* (Ahmed, 1970)	Blue rice leafhopper/一點葉蟬、黑唇斑葉蟬	Miwa (1943); Tsai (1965:37)	L	Minor
(24) *Empoascanara circumscripta* (Matsumura, 1910)	黃綠斑葉蟬	Miwa (1943); Tsai (1965:37)	L	Minor
(25) *Empoascanara limbata* (Matsumura, 1910)	雙紋斑葉蟬	Miwa (1943); Tsai (1965:37–38)	L	Minor
(26) *Kolla atramentaria* (Motschulsky, 1859)	白邊大葉蟬	Miwa (1943); Tsai (1965:34)	L	Minor
(27) *Macrosteles alpinus* (Zetterstedt, 1828)		Miwa (1943); Tsai (1965:35)	L	Minor
(28) *Maiestas dorsalis* (Motschulsky, 1859)	Zig-zag striped leafhopper/電光葉蟬、電光浮塵子、曲紋浮塵子	Miwa (1943); Tsai (1965:35); Cheng (2007)	L, G	Major
(29) *Nephotettix cincticeps* (Uhler, 1896)	Green rice leafhopper/偽黑尾葉蟬、偽黑尾浮塵子	Yen (1973); Cheng (2007)	L, G	Minor
(30) *Nephotettix nigropictus* (Stål, 1870)	Green rice leafhopper/黑條黑尾葉蟬、黑條黑尾浮塵子	Miwa (1943); Tsai (1965:36); Yen (1973); Cheng (2007)	L, G	Minor
(31) *Nephotettix virescens* (Distant, 1908)	Green rice leafhopper/臺灣黑尾葉蟬、臺灣黑尾浮塵子	Yen (1973); Cheng (2007)	L, G	Major
(32) *Nirvana placida* (Stål, 1859)	淡色隱脈葉蟬	Miwa (1943); Tsai (1965:34–35)	L	Minor
(33) *Stroggylocephalus agrestis* (Fallén, 1806)	稻扁浮塵子	Miwa (1943); Tsai (1965:36)	L	Minor
(34) *Thaia oryzivora* Ghauri, 1962	Small yellow leafhopper, Orange rice leafhopper/白翅葉蟬	Cheng (2007)	L	Minor
(35) *Thaia subrufa* (Motschulsky, 1863)	白翅葉蟬	Miwa (1943); Tsai (1965:37)	L	Minor
9. Meenoplidae	縞飛蝨科			
(36) *Nisia carolinensis* Fennah, 1971	縞飛蝨	Miwa (1943); Tsai (1965:38)	L	Minor
10. Derbidae	長翅飛蝨科			

表 2. 臺灣水稻害蟲 (蟎) 名錄。(續)

Table 2. An annotated checklist of rice insect pests and mites from Taiwan. (continued)

Taxonomic category/Scientific name	Preferred common name: English/Chinese	Cited reference with information of rice insect pests and mites from Taiwan	Associated with rice root (R), stem (S), leaf (L), flower (F) or grain (G)	Category of pest
(37) *Diostrombus politus* Uhler, 1896	赤長翅飛蝨	Miwa (1943); Tsai (1965:38)	L	Minor
11. Delphacidae	飛蝨科			
(38) *Laodelphax striatellus* (Fallén, 1826)	Small brown planthopper/斑飛蝨、穗飛蝨	Tsai (1965:39); Yen (1973); Cheng (2007)	L	Major
(39) *Metadelphax propinqua* (Fieber, 1866)	淡色飛蝨	Miwa (1943); Tsai (1965:38)	L	Minor
(40) *Nilaparvata lugens* (Stål, 1854)	Brown planthopper/褐飛蝨	Miwa (1943); Tsai (1965:39); Yen (1973); Cheng (2007)	L	Major
(41) *Perkinsiella sinensis* Kirkaldy, 1907	中華扁角飛蝨	Miwa (1943); Tsai (1965:40)	L	Minor
(42) *Sogatella furcifera* (Horváth, 1899)	White-backed planthopper/白背飛蝨	Miwa (1943); Tsai (1965:40); Cheng (2007)	L	Major
(43) *Tropidocephala brunnipennis* Signoret, 1860	瘤飛蝨、棕翅飛蝨	Miwa (1943); Tsai (1965:40)	L	Minor
12. Dictyopharidae	象蠟蟬科			
(44) *Raivuna patruelis* (Stål, 1859)	長頭臘蟬	Miwa (1943); Tsai (1965:38)	L	Minor
13. Cixiidae	菱飛蝨科			
(45) *Oteana oryzae* (Matsumura, 1911)	Long-nosed planthopper /稻菱飛蝨	Miwa (1943); Tsai (1965:38)	L	Minor
14. Ricaniidae	廣翅蠟蟬科			
(46) *Ricania taeniata* Stål, 1870	褐帶廣翅蠟蟬	Miwa (1943); Tsai (1965:41)	L	Minor
15. Aphididae	常蚜科			
(47) *Rhopalosiphum maidis* (Fitch, 1856)	Corn leaf aphid/玉米蚜	Miwa (1943); Tsai (1965:68); Cheng (2007)	S, L, G	Major
(48) *Rhopalosiphum padi* (Linnaeus, 1758)	Grain aphid/麥縊蚜、稻麥蚜	Cheng (2007)	S, L, G	Minor
(49) *Rhopalosiphum rufiabdominale* (Sasaki, 1899)	Rice root aphid/紅腹稻根蚜	Cheng (2007)	S, L, G	Minor
(50) *Sitobion miscanthi* (Takahashi, 1921)	Indian grain aphid/萱芒蚜	Miwa (1943); Tsai (1965:64)	S, L, G	Major
16. Pemphigidae	綿癭蚜科			
(51) *Tetraneura nigriabdominalis* (Sasaki, 1899)	Rice root aphid/稻根蚜蟲、粗長毛禾根蚜	Miwa (1943); Tsai (1965:69)	R	Minor

表 **2.** 臺灣水稻害蟲 (蟎) 名錄。(續)

Table 2. An annotated checklist of rice insect pests and mites from Taiwan. (continued)

Taxonomic category/Scientific name	Preferred common name: English/Chinese	Cited reference with information of rice insect pests and mites from Taiwan	Associated with rice root (R), stem (S), leaf (L), flower (F) or grain (G)	Category of pest
17. Pseudococcidae	粉介殼蟲科			
(52) *Brevennia rehi* (Lindinger, 1943)	Rice mealybug/稻粉紅介殼蟲	Cheng (2007)	S, L, G	Minor
(53) *Dysmicoccus boninsis* (Kuwana, 1909)	Gray sugarcane mealybug/稻粉介殼蟲、甘蔗嫡粉介殼蟲	Miwa (1943); Tsai (1965:76)	S, L, G	Minor
THYSANOPTERA	纓翅目			
1. Phlaeothripidae	管薊馬科			
(1) *Haplothrips aculeatus* (Fabricius, 1803)	Cereal thrips, Grass thrips/稻管薊馬	Miwa (1943); Tsai (1965:23); Cheng (2007)	F, G	Minor
2. Thripidae	薊馬科			
(2) *Frankliniella intonsa* (Trybom, 1895)	Flower thrips, Taiwan flower thrips/臺灣花薊馬	Cheng (2007)	F, G	Minor
(3) *Stenchaetothrips biformis* (Bagnall, 1913)	Paddy thrips, Oriental rice thrips, Rice thrips/稻薊馬	Tsai (1965:22); Yen (1973); Cheng (2007)	L	Minor
COLEOPTERA	鞘翅目			
1. Chrysomelidae	金花蟲科			
(1) *Dicladispa armigera* (Olivier, 1808)	Rice hispa/稻鐵甲蟲	Miwa (1943); Tsai (1965:145); Yen (1973); Cheng (2007)	L	Major
(2) *Oulema oryzae* (Kuwayama, 1931)	Rice leaf beetle/稻負泥蟲	Miwa (1943); Tsai (1965:147); Yen (1973); Cheng (2007)	L	Major
2. Curculionidae	象鼻蟲科			
(3) *Echinocnemus squameus* (Billberg, 1820)	Rice plant weevil/水稻象鼻蟲	Miwa (1943); Tsai (1965:149); Yen (1973); Cheng (2007)	L, R	Major
(4) *Lissorhoptrus oryzophilus* Kuschel, 1952	Rice water weevil/水稻水象鼻蟲	Cheng (2007)	L, R	Major
LEPIDOPTERA	鱗翅目			
1. Crambidae	草螟科			
(1) *Ancylolomia chrysographellus* (Kollar & Redtenbacher, 1844)	Angled grass moth	Miwa (1943); Tsai (1965:103)	L	Minor
(2) *Chilo suppressalis* (Walker, 1863)	Striped rice stem borer, Rice stem borer/二化螟、稻條螟	Miwa (1943); Tsai (1965:103); Yen (1973); Cheng (2007)	L, S	Major

表 2. 臺灣水稻害蟲 (蟎) 名錄。(續)

Table 2. An annotated checklist of rice insect pests and mites from Taiwan. (continued)

Taxonomic category/Scientific name	Preferred common name: English/Chinese	Cited reference with information of rice insect pests and mites from Taiwan	Associated with rice root (R), stem (S), leaf (L), flower (F) or grain (G)	Category of pest
(3) *Chilo auricilius* Dudgeon, 1905	Gold-fringed rice stem borer/臺灣稻螟蛾	Miwa (1943); Tsai (1965:103); Yen (1973)	L	Minor
(4) *Cnaphalocrocis medinalis* (Guenée, 1854)	Rice leaffolder, Rice leafroller/瘤野螟、水稻縱捲葉蟲	Miwa (1943); Tsai (1965:105); Yen (1973); Cheng (2007)	L	Major
(5) *Parapoynx stagnalis* (Zeller 1852)	Rice caseworm, Rice case bearer/白水螟蛾	Miwa (1943); Tsai (1965:105)	L, S	Minor
(6) *Parapoynx fluctuosalis* (Zeller, 1852)	Fluctuating China-mark, Waved China-mark/波緣帶紋水螟、稻筒水螟	Miwa (1943); Tsai (1965:105)	L	Minor
(7) *Scirpophaga incertulas* (Walker, 1863)	Paddy borer, Yellow rice borer, Yellow stem borer/三化螟、一點大螟、黃螟	Miwa (1943); Tsai (1965:103); Cheng (2007)	L	Major
2. Noctuidae	夜蛾科			
(8) *Mythimna loreyi* (Duponchel, 1827)	False army worm, Nightfeeding rice armyworm/羅氏秘夜蛾	Miwa (1943); Tsai (1965:114)	L	Minor
(9) *Mythimna separata* Walker, 1865	Paddy armyworm/分秘夜蛾、粘蟲	Miwa (1943); Tsai (1965:114)	L	Minor
(10) *Naranga aenescens* Moore, 1881	Rice green caterpillar, Rice green semilooper/稻螟蛉、紅帶黃夜蛾	Miwa (1943); Tsai (1965:115); Yen (1973); Cheng (2007)	L	Second
(11) *Naranga diffusa* (Walker, 1865)	Rice green semilooper	Yen (1973)	L	
(12) *Sesamia inferens* (Walker, 1856)	Purple stem borer, Pink borer/大螟、紫螟、盜污陰夜蛾、稻蛀莖夜蛾	Miwa (1943); Tsai (1965:115); Yen (1973); Cheng (2007)	L, S	Major
(13) *Spodoptera litura* (Fabricius, 1775)	Tobacco cutworm, Cotton leafworm/斜紋夜蛾	Cheng (2007)	L	Minor
(14) *Spodoptera mauritia* (Boisduval, 1833)	Lawn armyworm, Paddy swarming caterpillar/臺灣夜盜、劍斜紋夜蛾	Miwa (1943); Tsai (1965:115); Yen (1973); Cheng (2007)	L	Major
3. Erebidae	裳蛾科			
(15) *Cifuna locuples* Walker, 1855	Bean tussock moth/腎毒蛾	Miwa (1943); Tsai (1965:117)	L	Minor
(16) *Psalis pennatula* (Fabricius, 1793)	Yellow hairy caterpillar, hairy rice caterpillar/甘蔗毒蛾、鉤毒蛾	Miwa (1943); Tsai (1965:117)	L	Minor
4. Hesperiidae	挵蝶科			
(17) *Borbo cinnara* (Wallace, 1866)	Rice swift, Formosan swift/臺灣挵蝶、曲紋稻挵蝶	Miwa (1943); Tsai (1965:124); Yen (1973); Cheng (2007)	L	Minor
(18) *Parnara bada* (Moore, 1878)	African straight, Straight swift/廣紋稻挵蝶、東亞廣紋稻苞蟲、小稻挵蝶	Miwa (1943); Tsai (1965:124)	L	Minor

表 2. 臺灣水稻害蟲 (蟎) 名錄。(續)

Table 2. An annotated checklist of rice insect pests and mites from Taiwan. (continued)

Taxonomic category/Scientific name	Preferred common name: English/Chinese	Cited reference with information of rice insect pests and mites from Taiwan	Associated with rice root (R), stem (S), leaf (L), flower (F) or grain (G)	Category of pest
(19) *Parnara guttatus* (Bremer & Grey, 1852)	Rice skipper, Paddy skipper/稻苞蟲、稻挵蝶、直紋稻挵蝶	Miwa (1943); Tsai (1965:124); Yen (1973); Cheng (2007)	L	Minor
(20) *Pelopidas mathias* (Fabricius, 1798)	Dark small-branded swift, Small branded swift, Rice skipper/隱紋稻挵蝶、臺灣稻挵蝶	Miwa (1943); Tsai (1965:124); Cheng (2007)	L	Minor
5. Nymphalidae	蛺蝶科			
(21) *Melanitis leda* (Linnaeus, 1758)	Rice satyrid, Satyrid butterfly/水稻蛇目蝶、淡色樹蔭蝶	Miwa (1943); Tsai (1965:126); Yen (1973); Cheng (2007)	L	Minor
(22) *Mycalesis gotama nanda* Fruhstorfer, 1908	Chinese bush brown/日月蝶、姬蛇目蝶、稻眉眼蝶	Tsai (1965:127); Cheng (2007)	L	Minor
DIPTERA	雙翅目			
1. Agromyzidae	潛蠅科			
(1) *Pseudonapomyza asiatica* Spencer, 1961	Rice leaf miner/亞洲潛葉蠅、亞洲擬菁潛蠅	Cheng (2007)	L	Minor
2. Ephydridae	水蠅科			
(2) *Hydrellia philippina* Ferino, 1968	Rice leafwhorl maggot/稻心蠅、稻桿蠅	Yen (1973); Cheng (2007)	L, S	Minor

存疑種。Cheng (2007)《植物保護圖鑑系列 8-水稻保護 (上冊)》一書除以 Tsai (1965) 報告為參考資料外，另以其他學者發表資料加以整理彙整，書籍記錄為害水稻害蟲種類 6 目 22 科 58 種與蟎類 1 目 1 科 1 種，報告中增列的直翅目 (Orthoptera) 蝗科 (Acrididae) 的日本稻蝗 (*Oxya japonica* (Thunberg, 1815)) 等 10 種害蟲與絨蟎目 (Trombidiformes) 細蟎科 (Tarsonemidae) 的稻細蟎 (*Steneotarsonemus spinki* Smiley, 1967) 1 種，經查詢上述資料庫後，直翅目 (Orthoptera) 錐頭蝗科 (Pyrgomorphidae) 的臺灣負蝗 (*Atractomorpha psittacina* (Haan, 1842)) 等 2 種並未有危害水稻之報告而被列於存疑種 (附錄)。而近年於嘉義地區有機水稻田長期監測調查結果，水稻害蟲種類間 (包含遷移性害蟲) 族群發生雖然彼此有消長，但未發現新興害蟲種類之出現。

討論

臺灣早期農田灌溉設施不發達，水稻栽培以耐旱的陸稻 (upland rice) 或秈稻 (indica variety) 為主，加上水稻種植期混雜 (Huang 1999)，害蟲發生種類繁多且危害嚴重，特別是單食性種類 (如三化螟蟲 *Scirpophaga incertulas* Walker, 1863) (Miwa 1943; Tsai 1965)；日治後期至臺灣光復期間，水利灌溉系統的大量修築且覆蓋面積廣，水稻種植品種也逐漸轉變為需大量水源灌溉的稉稻 (japonica variety)，蟲害的發生以半水生昆蟲 (semiaquatic insect) 為主，加上此時期為水稻增產期，配合化學合成肥料的大量施用，更創造出適合水稻害蟲孳生繁衍的環境，雖然有化學藥劑的防治，其他次要害蟲的崛起仍絡繹不絕，如飛蝨類與黑尾葉蟬等 (Yen 1973; Cheng & Chu 1999; Cheng 2007)；1984 年後，因國內水稻生產過剩而進行稻田轉作政策，水稻蟲害防治轉以生態為基礎之綜合管理，後期水稻害蟲除人為引進之外來入侵種 (如水稻水象鼻蟲) 與遷移性害蟲種類 (如褐飛蝨、白背飛蝨及水稻縱捲葉蟲) 族群消長略有變化外，害蟲相大致相同 (Cheng 2007; Huang *et al.* 2010)，近年田間調查蟲害之結果也顯示種類發生沒有改變。害蟲名錄之重新審定除提供害蟲發生紀錄外，並配合耕作環境、品種及政策的改變與蟲害發生更迭等資料，提供生態分析與管理之參考，也提供臺灣未來糧食安全管理策略擬定之參考資訊。

惟近年來全球暖化，臺灣之氣候環境由原本之亞熱帶，將逐漸轉變成熱帶氣候，也因此逐漸變成適合南洋地區熱帶水稻害蟲之入侵與立足 (Lai *et al.* 2023)，例如亞洲水稻癭蚋 (gall midge, *Orseolia oryzae* (Wood-Mason))、水稻螟蛾類 (水稻白螟蟲 (rice white borer, *Scirpophaga innotata* (Walker)) 及馬來亞黑椿象等。在東南亞地區，部分害蟲已有報告族群大發生且逐漸向北擴散之現象 (Sharma 2016; Lai *et al.* 2023)，臺灣也應特別注意此等害蟲之入侵並加強檢疫，避免害蟲種類發生急劇變化，進而威脅臺灣稻作安全生產。

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附錄． 臺灣水稻害蟲之存疑種清單。

Appendix. A list of questionable species of rice pests in Taiwan.

Orthoptera

Acrididae

1. *Heteropternis respondens* (Walker, 1859)
2. *Oxya hyla* Serville, 1831
3. *Oxya velox* (Fabricius, 1787)
4. *Oxya vicina* Brunner von Wattenwyl, 1893
5. *Phlaeoba sinensis* Bolívar, 1914
6. *Traulia ornata* Shiraki, 1910
7. *Trilophidia annulata* (Thunberg, 1815)
8. *Xenocatantops humilis* (Serville, 1838)

Pyrgomorphidae

9. *Atractomorpha lata* (Mochulsky, 1866)
10. *Atractomorpha psittacina* (Haan, 1842)

Gryllidae

11. *Velarifictorus micado* (Saussure, 1877)

Trigonidiidae

12. *Pteronemobius caudatus* (Shiraki, 1911)
13. *Trigonidium cicindeloides* Rambur, 1838

Blattodea

Termitidae

14. *Pericapritermes nitobei* (Shiraki, 1909)
15. *Sinocapritermes mushae* (Oshima & Maki, 1919)

Hemiptera

Aphididae

16. *Sitobion avenae* Fabricius, 1794

Pentatomidae

17. *Andrallus spinidens* (Fabricius, 1787)
18. *Megarrhamphus hastatus* (Fabricius, 1803)

Plataspidae

19. *Megacopta punctatissima* (Montandon, 1896)

Coreidae

20. *Paradasynus spinosus* Hsiao, 1963

Miridae

21. *Lygus sacchari* Matsumura 1910

Dictyopharidae

22. *Raivuna sinica* (Walker, 1851)

Achilidae

23. *Usana yanonis* Matsumura, 1914

Cicadellidae

24. *Ishidaella albomarginata* (Signoret, 1853)

附錄 . 臺灣水稻害蟲之存疑種清單。(續)

Appendix. A list of questionable species of rice pests in Taiwan. (continued)

25. *Macrosteles sexnotatus* (Fallén, 1806)
26. *Scaphoideus albovittatus* Matsumura, 1913
27. *Scaphoideus festivus* Matsumura, 1902

Coleoptera

Chrysomelidae

28. *Donacia lenzi* Schonfeldt, 1888

Anthicidae

29. *Anthelephila bramina* (LaFerté-Séneetère, 1849)

Lepidoptera

Hesperiidae

30. *Pelopidas sinensis* (Mabille, 1877)
31. *Suastus gremius* Fabricius, 1798
32. *Telicota bambusae horisha* Evans, 1934

Nymphalidae

33. *Melanitis phedima polishana* Fruhstorfer, 1908
34. *Mycalesis francisca* Cramer, 1782

A Revised Checklist of Insects and Mites of Rice from Taiwan

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Abstract

Huang, S. H., P. Y. Lai, and T. C. Wang. 2025. A revised checklist of insects and mites of rice from Taiwan. J. Taiwan Agric. Res. 74(2):189–204.

Rice is the staple crop in Taiwan, and the safe production of rice is crucial for the well-being of its people and national security. Establishing the rice pest checklist is important to provide information for pest ecology and management tactics. The recorded number of rice insect pests has varied from 59 to 111 species. After the revision, there were 107 species of insects and 1 species of mite currently, and 34 species, such as short-horned grasshopper (*Heteropternis respondens* (Walker, 1859)), were considered as dubious and excluded in the present checklist.

Key words: Taiwan, Rice, Checklist of insects and mites.

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